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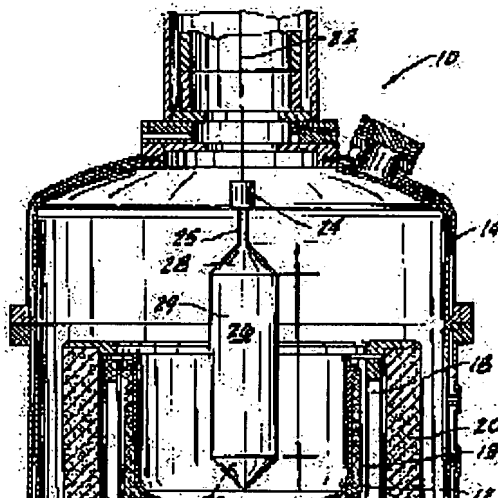
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(54) CONTROL OF HEAT HISTORY OF CZOCHRALSKI GROWTH TYPE SILICON

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a Czochralski growth process which can produce single crystalline silicon ingots having uniform heat history from the silicon melt contained in a crucible having the same axis as that of the ingot.

SOLUTION: The pulling up speed of the cone end part 30 of the ingot 26 is kept relatively constant comparable to the pulling up speed of the second half of the main body of the ingot. While the end cone 30 of the crystal is pulled up at a constant speed, the amount of heat to be fed to the melt may be increased, the



rotation of the crystal is reduced and/or the rotation of the crucible may be reduced whereby the process may be operated more precisely. The second half of the main body of the grown single crystal silicon ingot 26 is relatively uniform in the flow pattern defect and the concentration of the precipitating oxygen in the axial direction.

LEGAL STATUS

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